



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/736,359

12/15/2003

Jeffrey E. Thomsen

C11.12-0005

4091

7590

06/06/2005

Steven M. Koehler
Westman, Champlin & Kelly
900 Second Avenue South, Suite 1600
Minneapolis, MN 55402-3319

EXAMINER

DEB, ANJAN K

ART UNIT

PAPER NUMBER

2858

DATE MAILED: 06/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary	Application No. 10/736,359	Applicant(s) THOMSEN ET AL.	
	Examiner Anjan K. Deb	Art Unit 2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 06/14/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: In the specification page 1, line 5, insert after "10/191,680," --now US Patent Number 6,664,789--.

Appropriate correction is required.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 11-15, 17-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 of U.S. Patent No. 6,429,658.

Re claims 11-15, 17, 18 U.S. Patent No. 6,429,658 (claims 4-7) recites all of the claimed limitations including engine having timing port, having timing mark, variable reluctance sensor comprising support tube having threads to mate with threads of timing port. While timing port in crankcase was not claimed explicitly this limitation is inherently disclosed.

Re claims 19,20 U.S. Patent No. 6,429,658 did not claim adjustably securing sensor assembly through timing port until contact is made with the movable member followed by retracting sensor assembly after making contact, however it would have been obvious to do so as to ensure that that the sensor is properly aligned with moveable member and retracting the sensor away from moveable member so as to protect the sensor from damage.

4 . Claims 16, 21, 22 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 of U.S. Patent No. 6,429,658 in view of Mochizuki (US 5,127,373).

Re claims 16,21,22 US Patent No. 6,429,658 recites all of the claimed limitations as set forth above except locking nut but would have been obvious to provide one for securing sensor to crankcase so that the sensor can be held in place.

Mochizuki (US 5,127,373) discloses engine comprising pressure sensor 45 that is used to determine timing wherein sensor 45 is threaded into a mounting plate 51 on crankcase 17 and sensor 45 held in place by lock nut 55 (Fig. 2).

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify U.S. Patent No. 6,429,658 by adding lock nut disclosed by Mochizuki so that sensor can be held in place.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2858

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US 5,738,074) in view of Mochizuki (US 5,127,373).

Re claim 11-18, Nakamura disclose an engine having a timing port in crankcase 17 and a timing mark (timing gear 62) indicative of position of movable member 18 (timing gear 62 rotates with the crankshaft 18), and a sensor assembly (coil 63) secured in the timing port and adapted to provide a timing mark signal indicative of presence of the timing mark (coil 63 outputs pulse signals to the ECU 38).

Re claim 11, 17 Nakamura did not explicitly disclose timing port includes thread and sensor assembly threadably secured in the timing port.

Mochizuki discloses engine comprising pressure sensor 45 that is used to determine timing wherein sensor 45 assembly is threadably secured in the timing port (threaded into a mounting plate 51 on crankcase 17).

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Nakamura by adding thread in timing port for threadably securing sensor to crankcase as disclosed by Mochizuki so that sensor can be inserted in the crankcase.

Re claim 12-14, Nakamura did not explicitly disclose variable reluctance sensor. However the coil assembly 63 disclosed by Nakamura is broadly interpreted as variable

Art Unit: 2858

reluctance sensor since it is a magnetic type of sensor well known in the art for speed and position sensing.

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify the coil type magnetic sensor disclosed by Nakamura by variable reluctance reluctance type magnetic sensor for accurate position sensing of moveable member.

Re claims 15,16 Nakamura did not explicitly disclose device comprises securing the sensor with a locking nut.

Mochizuki discloses engine comprising pressure sensor 45 that is used to determine timing wherein sensor 45 assembly is threadably secured in the timing port (threaded into a mounting plate 51 on crankcase 17) and sensor 45 held in place by lock nut 55 (Fig. 2).

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Nakamura by adding lock nut disclosed by Mochizuki so that sensor can be held in place.

Re claims 13, 14, 17, 18 Nakamura did not explicitly disclose threaded support tube but would have been obvious to provide one as required for threadably inserting the sensor in the crankcase as disclosed by Mochizuki.

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Nakamura by adding threaded support tube for threadably inserting the sensor in the crankcase as disclosed by Mochizuki.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Matsuda (US 6,227,171 B1) discloses sensor 9 in crankcase 8 of engine 1 to determine timing of injection of fuel (Fig. 1).

Nath (US 20030193331 A1) discloses retractable sensor unit 16 for inspection of components in turbine engine wherein sensor unit 16 is retracted prior to rotation of rotor disk 30, to protect sensor unit 16 from being damaged.

Boyer (US 5,014,676) discloses engine ignition system comprising variable reluctance crankshaft position sensor (VRS, CPS) 11 (Fig. 1).

Dickmeyer (US 5,507,089) discloses method of assembly of a variable reluctance sensor within a tube (hollow sensor shell).

Art Unit: 2858

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Anjan K. Deb whose telephone number is 571-272-2228. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lefkowitz Edwards can be reached at 571-272-2180.



Anjan K. Deb

Patent Examiner

Art Unit: 2858

5/26/05

Tel: 571-272-2228

Fax: 571-273-2228

E-mail : anjan.deb@uspto.gov